DIST	COUNTY	LOCATION CODE	POST MILE TOTAL PROJECT	SHEET No	TOTAL SHEETS
03	Yub	5505		1	7

INDEX OF PLANS

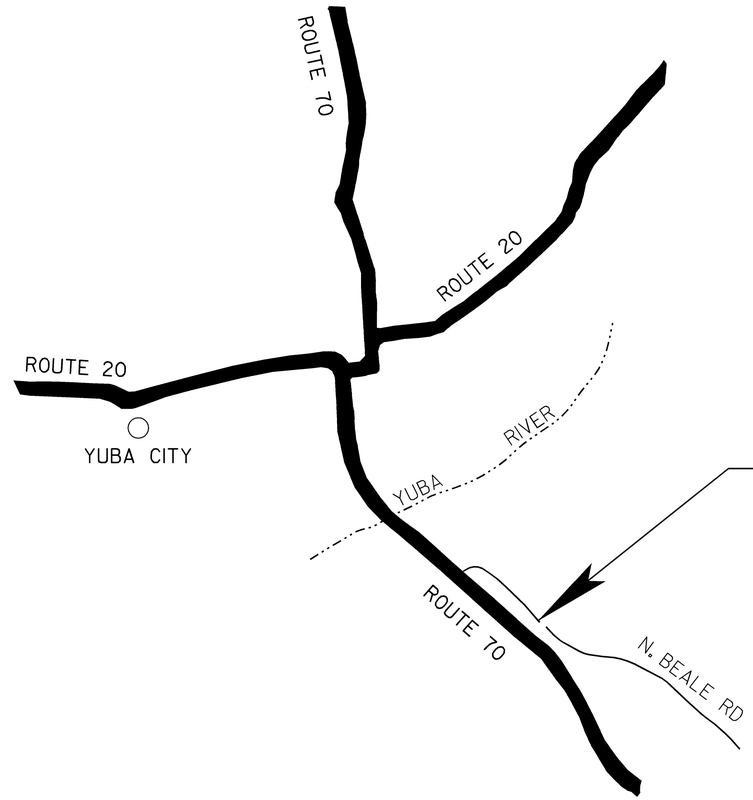
THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR BUILDING CONSTRUCTION
IN YUBA COUNTY
IN MARYSVILLE
AT THE
MARYSVILLE EQUIPMENT BUILDING #5
AT 981 NORTH BEALE ROAD

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



LOCATION OF CONSTRUCTION
MARYSVILLE EQUIPMENT BUILDING #5
LOCATION CODE NO. 5505

CALIFORNIA STATE FIRE MARSHAL
APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.
Reviewed by: JASON D. DeWITT
Approval date: 1-11-10

PHOTOVOLTAIC SYSTEMS
CSFM FILE # 01-58-11-0006

NO SCALE

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

Tommy F. Lee 12-09-09
PROJECT ENGINEER DATE
REGISTERED ELECTRICAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER
TOMMY F. LEE
No. 18534
Exp. 12-31-10
ELEC
STATE OF CALIFORNIA

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

PROJECT MANAGER: CLARK PERRY
DESIGN ENGINEER: ALAN TORRES

CONTRACT No. 03-0AA014

BORDER LAST REVISED 8/1/2008 | CALTRANS WEB SITE IS: HTTP//WWW.DOT.CA.GOV/ | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => etapalla | DGN FILE => title.dgn | CU 03131 | EA 0AA011

LAST REVISION DATE PLOTTED => 20-JAN-2010
00-00-00 TIME PLOTTED => 14:51

INDEX OF SHEETS

SHEET No.	DESCRIPTION
GP	GENERAL PLAN AND LEGEND
	ELECTRICAL
EE-0	EXISTING UTILITY SITE PLAN
EE-1	SITE PLAN
EE-2	SINGLE LINE DIAGRAM GRID-TIED PHOTOVOLTAIC SYSTEM
EE-3	ROOF PLAN
EE-4	ELEVATION AND DETAILS

CALIFORNIA STATE FIRE MARSHAL APPROVED
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Reviewed by: JASON D. DeWITT
Approval date: 1-11-10

DIST.	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Yub	5505		2	7

Tommy F. lee 12-09-09
REGISTERED ELECTRICAL ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER — TOMMY F. LEE — No. 18534 — Exp. 12-31-10 — ELEC — STATE OF CALIFORNIA

1-11-10
PLANS APPROVAL DATE

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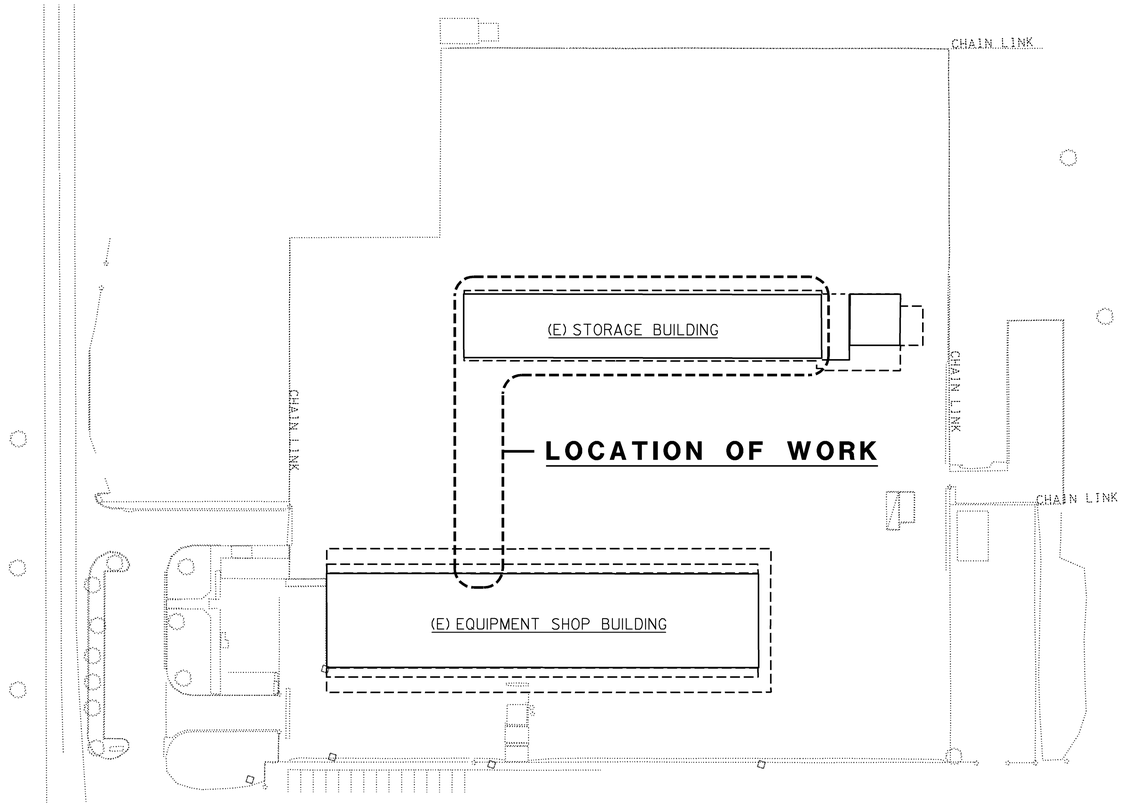

SITE PLAN
SCALE 1" = 60'-0"

GRAPHIC SYMBOLS

SYMBOL	DESCRIPTION
(2) 1/2"C, PVC, 2#12	CONDUCTOR INFO (PER CONDUIT); CONDUIT TYPE; CONDUIT SIZE; NUMBER OF CONDUITS (NO NUMBER INDICATES ONE CONDUIT)
—MC—	CONDUIT, RIGID STEEL, UNDERGROUND
—PVC—	CONDUIT, POLYVINYL CHLORIDE, UNDERGROUND
	CONDUIT, FLEXIBLE
	CONDUIT, TURN UP
	CONDUIT, TURN DOWN
A / EE-2	SECTION/ELEVATION LETTER; SHEET NUMBER
1 / EE-2	DETAIL NUMBER; SHEET NUMBER
—E—E—	EXISTING CONDUIT AND CONDUCTORS-TO REMAIN UNLESS OTHERWISE NOTED
	CONDUIT EXPOSED
BC	INSTALL PULL BOX IN EXISTING CONDUIT RUN.
	CIRCUIT BREAKER, SINGLE POLE
	CIRCUIT BREAKER, DOUBLE POLE
	CONTACT, NORMALLY OPEN
	SWITCH, DOUBLE-POLE
	FUSE
	GROUNDING ELECTRODE
	ENCLOSURE BOND

ABBREVIATIONS

A	AMPERES
AC	ALTERNATE CURRENT
C	CONDUIT
DC	DIRECT CURRENT
E	EXISTING
G	GROUND
JB	JUNCTION BOX
KWH	KILO WATT HOUR
MC	METALIC CONDUIT
MIN	MINIMUM
MT	EMPTY CONDUIT
P	POLE
PB	PULL BOX
PB(T)	TRAFFIC RATED PULL BOX
PTC	PV USA TEST CONDITIONS
PVC	POLYVINYL CHLORINE
PV	PHOTOVOLTAIC
RSC	RIGID STEEL CONDUIT
STC	STANDARD TEST CONDITIONS
TYP	TYPICAL
TTB	TELEPHONE TERMINAL BOARD
V	VOLT

APPLICABLE CODES
2007 California Building Code (CBC) Title 24, Part 2 CCR
2007 California Electrical Code (CEC) Title 24, Part 3 CCR
2007 California Fire Code (CEC) Title 24, Part 9 CCR

EXISTING BUILDING DATA

2007 CBC

BUILDING/ PORTION	OCCUPANCY GROUP	CONSTRUCTION TYPE	ALLOWABLE AREA	ACTUAL AREA	YEAR BUILDING BUILT
(E) STORAGE BUILDING	SI	V-B	2,542SF	14,150 SF	1963

* ROOF DATA : CORRUGATED ASBESTOS ROOFING OVER 9 1/2" PURLINS

THIS DRAWING ACCURATE FOR ELECTRICAL WORK ONLY

DESIGN SUPERVISOR: Jasvinder S Sandhu; DESIGN ENGINEER	DESIGN	BY Tommy F. Lee	CHECKED Jesse S. Sandhu	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO. 16M5505 POST MILE	MARYSVILLE MAINTENANCE STATION PHOTOVOLTAIC SYSTEM — GENERAL PLAN AND LEGEND — SHEET GP
	DETAILS	BY Dali Zhou	CHECKED Tommy F. Lee				
	QUANTITIES	BY Tommy F. Lee	CHECKED Jesse S. Sandhu				

DOES SD Imperial Rev. 1/07

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 03131
EA 0AA011

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)										SHEET	OF
5/11/09	12/9/09										

21-JAN-2010 06:55

gp.dgn

DIST.	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Yub	5505		3	7

CALIFORNIA STATE FIRE MARSHAL APPROVED

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Reviewed by: JASON D. DeWITT

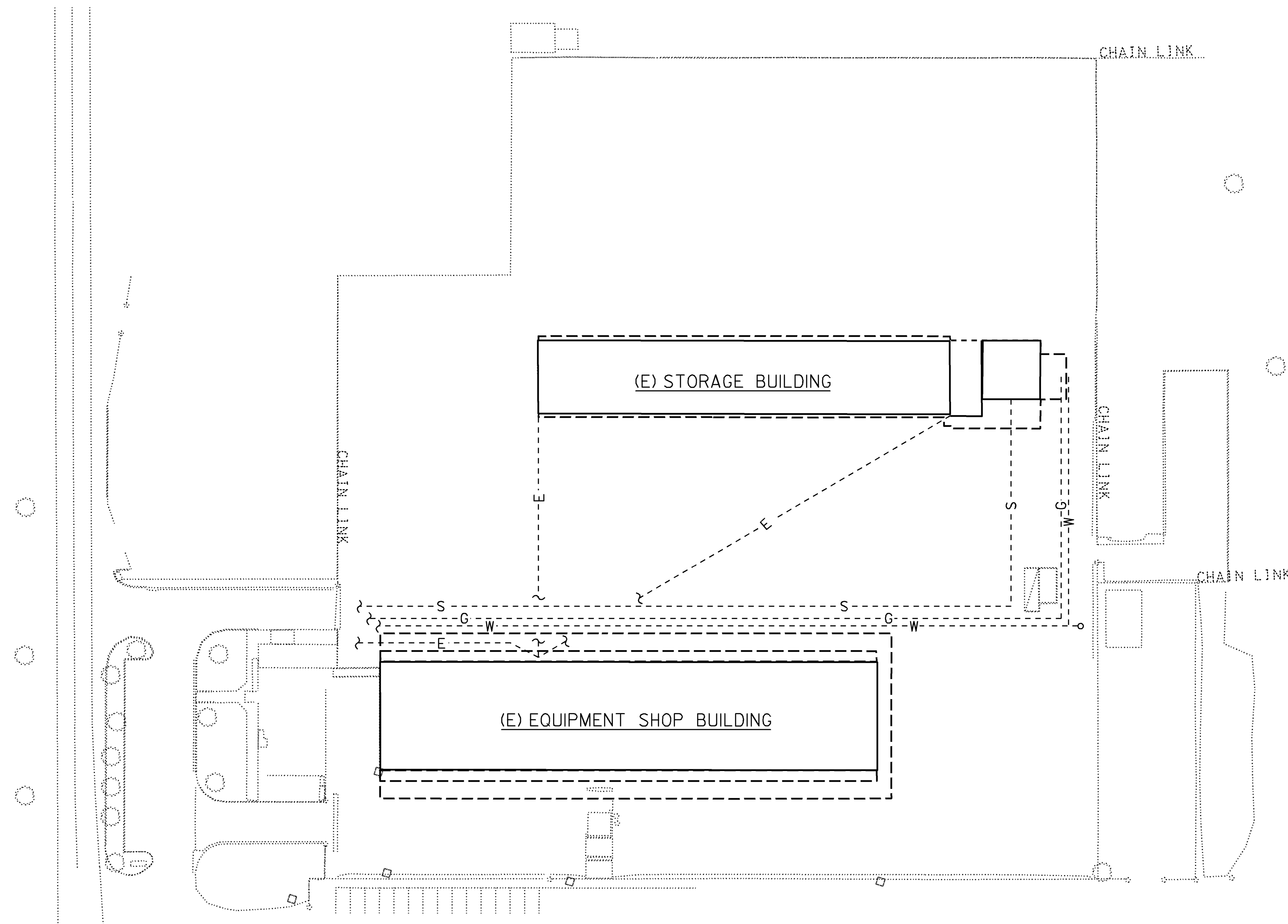
Approval date: 1-11-10

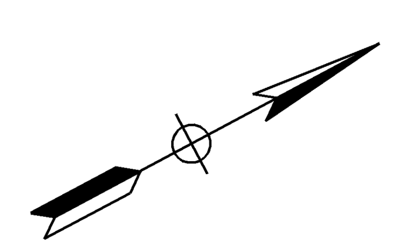
Tommy F. Lee 12-09-09

REGISTERED ELECTRICAL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER — TOMMY F. LEE — No. 18534 — Exp. 12-31-10 — ELEC — STATE OF CALIFORNIA

PLANS APPROVAL DATE





SITE PLAN

SCALE 1" = 60'-0"

GRAPHIC SYMBOLS (THIS SHEET)

SYMBOL	DESCRIPTION
—E—	POWER AND TELEPHONE CONDUITS AND CONDUCTORS
—G—	GAS
—S—	SEWER
—W—	WATER

General Notes:

A. *For complete right of way, see Right of Way Record Maps at the Marysville District office.*

B. *This plan accurate for Utility information only.*

C. *Location of Utility Facilities shown are approximate and shall be verified prior to beginning of construction.*

Jul Schoff — DESIGN SUPERVISOR

Jaswinder S Sandhu — DESIGN ENGINEER

	BY	CHECKED
DESIGN	Tommy F. Lee	Jesse S. Sandhu
DETAILS	Dali Zhou	Tommy F. Lee
QUANTITIES	Tommy F. Lee	Jesse S. Sandhu

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN

BRIDGE NO. 16M5505
POST MILE

MARYSVILLE MAINTENANCE STATION PHOTOVOLTAIC SYSTEM

EXISTING UTILITY SITE PLAN

SHEET **EE-0**

DOES SD Imperial Rev. 1/07

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 03131
EA 0AA011

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY): 10/29/09 12/9/09

SHEET OF

20-JAN-2010 14:51

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DIST.	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Yub	5505		4	7

Tommy F. lee 12-09-09
REGISTERED ELECTRICAL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER
TOMMY F. LEE
No. 18534
Exp. 12-31-10
ELEC
STATE OF CALIFORNIA

1-11-10
PLANS APPROVAL DATE

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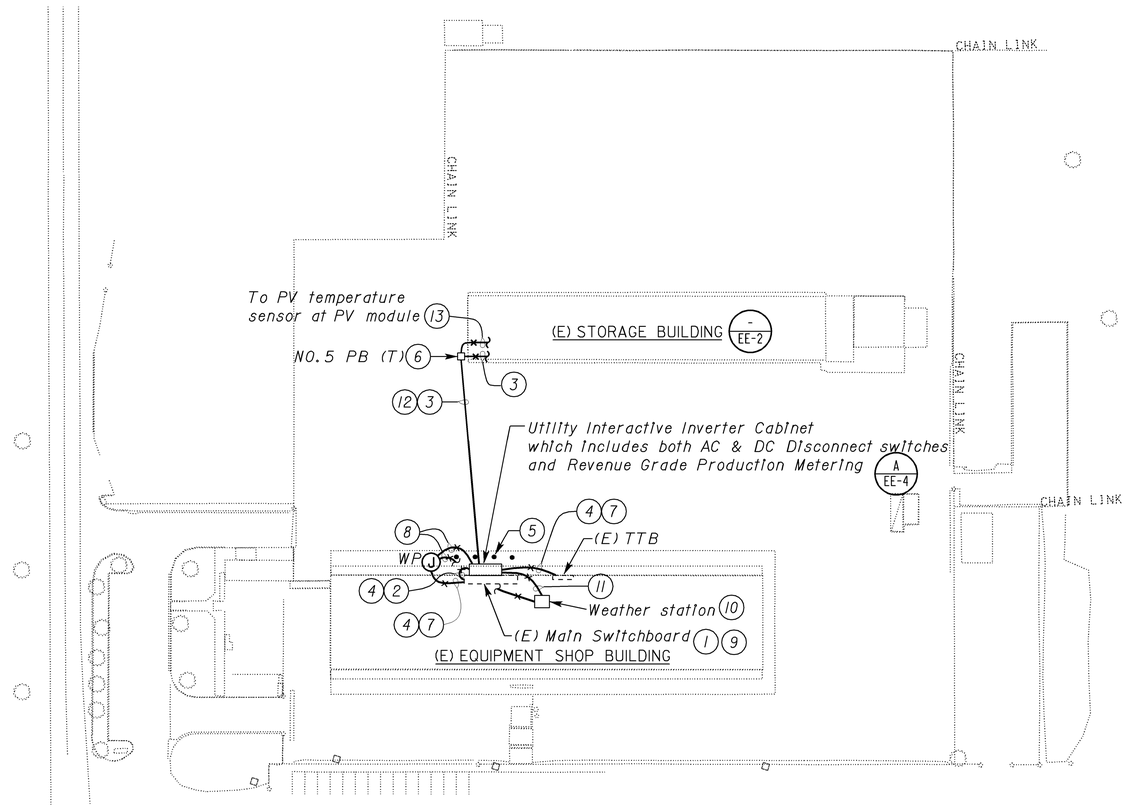
Reviewed by: JASON D. DeWITT
Approval date: 1-11-10



SITE PLAN
SCALE 1" = 60'-0"

General Notes:

A. *The Contractor shall verify true north prior to installation of photovoltaic system.*

B. *All AC/DC feeder conductors and equipment grounding conductors shall be sized to meet or exceed the following:*

- *Total net voltage drop of the photovoltaic electrical power generation system from photovoltaic source to the existing Switchboard shall not exceed 2%.*
- *Upon occurrence of any kind of fault at any point in the system, over current protective devices shall trip within ½ cycle.*

C. *Not all electrical/mechanical equipment and conduit systems are shown.*

D. *Location of all existing equipment and conduit systems as shown are approximate only. Contractor shall verify the exact location of all equipment and conduit systems in the field where required.*

E. *Saw cut existing paved surfaces at places where required for installation of underground conduit system and repair disturbed surfaces to match existing.*

F. *For photovoltaic system single line diagram, see sheet EE-2.*

G. *For graphic symbols and abbreviations, see GP sheet.*

H. *Provide conduit flashing as required for penetration through roofing.*

Notes:

(1) *Existing Main Switchboard is Safety Switchboard, 480-Volt, 3-phase, 3-wire, switchboard with 800-Ampere main circuit breaker. Install 145-Ampere, 3-pole, molded case circuit breaker, in the lowest available space of the distribution section, for connecting PV system. New circuit breaker shall have ampere interrupting capacity (AIC) of 35,000 symmetrical at 480-Volt. Adjacent to the new 3-pole circuit breaker, install screw on type nameplate with letter height of ¼" to read "PHOTOVOLTAIC SYSTEM". Install screw on type sign on existing Main Switchboard with letter height of ½" to read "THIS PANEL FED BY MULTIPLE SOURCES (UTILITY AND SOLAR)".*

(2) *3"C, MC, five conductors; three phase, one neutral and one equipment grounding conductor, to 3-pole circuit breaker for PV system at the existing 480-Volt switchboard.*

(3) *(2) 2"C, MC, with DC conductors and equipment grounding conductor from PV Array Circuit Combiner Box #1 and #2 on the existing Storage Building roof to Fused Sub-Array Combiner inside Utility Interactive Inverter Cabinet.*

(4) *Core drill through existing wall and use "LB" type conduit body for conduit penetration.*

(5) *Fixed pipe guard post, typical. Install 4 fixed pipe guard posts with a maximum distance of 4' between posts to protect Utility Interactive Inverter Cabinet. For fixed pipe guard post details, see detail 2 on sheet EE-4.*

(6) *Install ground rod inside the traffic rated pull box and connect equipment grounding conductor to it by using ground clamp.*

(7) *½"C, MC, Category 6 cable to existing TTB.*

(8) *½"C, MC, 2#12, 1#12G.*

(9) *Install 20 A, single pole molded case circuit breaker in available space at existing 120/208-Volt, 3-phase, distribution switchboard for supplying weather station and communication gateway. New circuit breaker shall have ampere interrupting capacity (AIC) of 35,000 ampere symmetrical at 240-Volt. Adjacent to the circuit breaker, install screw on type nameplate with letter height of ¼" to read "WEATHER STATION".*

(10) *For Weather Station. See detail 4 on sheet EE-4. Install weather station on the existing Storage Building roof as directed by the Engineer.*

(11) *¾"C, MC, one RS485 modbus cable and shielded cable for PV module cell temperature monitoring.*

(12) *¾"C, MC, Shielded cable for photovoltaic module cell temperature monitoring.*

(13) *½"C, MC, Shielded cable for photovoltaic module cell temperature monitoring.*

THIS DRAWING ACCURATE FOR ELECTRICAL WORK ONLY

DESIGN	BY Tommy F. Lee	CHECKED Jesse S. Sandhu	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO. 16M5505	MARYSVILLE MAINTENANCE STATION PHOTOVOLTAIC SYSTEM	SHEET EE-1
DETAILS	BY Dali Zhou	CHECKED Tommy F. Lee			POST MILE	SITE PLAN	
QUANTITIES	BY Tommy F. Lee	CHECKED Jesse S. Sandhu					

DOES SD Imperial Rev. 1/07

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 03131
EA 0AA011

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)										SHEET	OF
5/29/09	7/28/09	12/9/09									

21-JAN-2010 06:49

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DIST.	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Yub	5505		5	7

CALIFORNIA STATE FIRE MARSHAL APPROVED

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Reviewed by: JASON D. DeWITT

Approval date: 1-11-10

Tommy F. Lee 12-09-09

REGISTERED ELECTRICAL ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER — TOMMY F. LEE — No. 18534 — Exp. 12-31-10 — ELEC — STATE OF CALIFORNIA

PLANS APPROVAL DATE

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Photovoltaic Module

PV modules shall be minimum 185 (STC) watt, polycrystalline silicon cell type module with interconnection connectors rated for 90°C. PV modules shall be UL 1703 listed with a maximum system voltage of 600 VDC. PV module manufacturer shall be one of those manufacturers listed as eligible California Solar Initiative (CSI) PV module manufacturer.

Photovoltaic Array Circuit Combiner Box

PV array circuit combiner box shall be factory assembled, 600 VDC rated combiner box with fused input circuits, two isolated DC bus bars, ground bus bar, all enclosed inside NEMA 3R lockable hinged cover enclosure. The combiner box shall be UL 1741 listed.

PV array circuit combiner box shall have the following components:
- DIN Rail mounted touch safe fuse holders with fuse.
- Positive DC bus bar, Negative DC bus bar and ground bus bar.
- DIN rail mounted Grid-Tie surge arrestor: .The surge arrestor shall be rated to withstand 40 kA (8/20 micro second) induced transient surge type and compatible to use with grounded PV arrays.

Weather Station

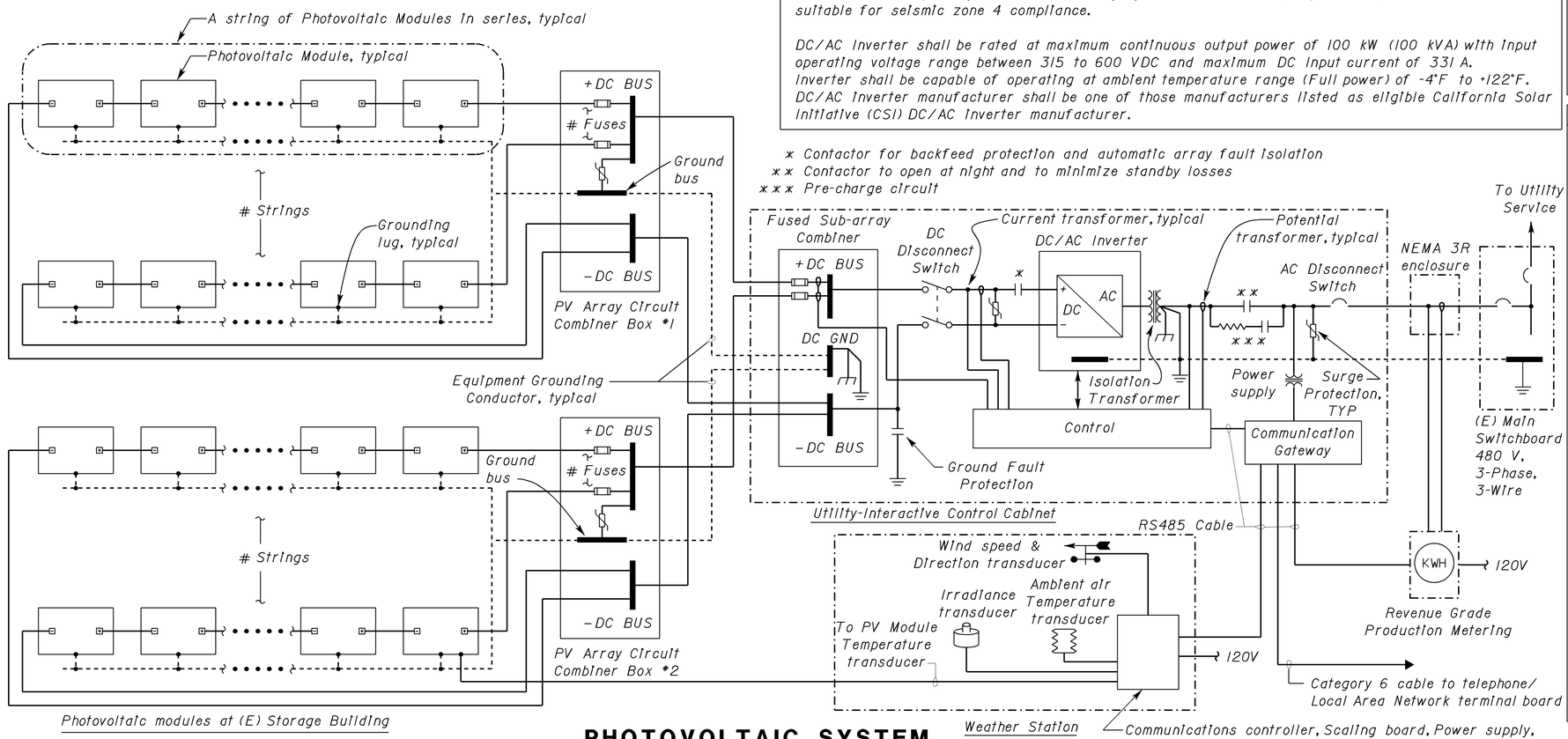
Weather station shall be outdoor type, factory assembled system consisting of the following equipment:
- Irradiance transducers, Silicon Pyranometer type
- Ambient Temperture transducers, K-type thermistor type
- Module Temperture transducers, K-type thermistor type
- Wind speed and Direction transducers, Anemometer type
- Communications controller, Scaling board, Power supply, and RS485 Surge Suppressor all enclosed inside NEMA 3R Enclosure
- NEMA 3R Enclosure, exterior door shall be lockable with a padlock.

Utility Interactive Control Cabinet

Utility Interactive Control cabinet shall be outdoor type, factory assembled system consisting of the following equipment:
- NEMA 3R Enclosure.
- 100 kW/100 kVA, 480/277 V, 3-phase, 4-wire at a power factor of 0.99 or greater.
- Fused Sub-array Combiner with minimum of 4 array inputs for positive DC, negative DC, and DC ground bus bars. Positive array inputs fuse size to match loading.
- Built-in DC and AC disconnect switches size to match loading.
- Integrated output isolation type transformer.
- Ground Fault Protection.
- Integrated AC and DC Surge Protections.
- Integrated AC and DC contactors.
- Pre-charge circuit.
- Current and potential transformers
- Human Machine Interface (HMI). AC/DC Inverter's HMI shall be equipped with LCD and keypad displaying main menu. HMI main menu shall display system monitoring, status and faults and operation. Monitoring menu shall display system status, metering, daily, weekly and monthly energy production. Status and faults menu shall display status messages, system output, and number of faults. Operation menu shall display control and settings.
- Communication Gateway with datalogging and communications for remote monitoring system with Internet connectivity (TCP/IP). Communication gateway shall be UL listed.
- Sub-array monitoring
- AC Ground bus bars.

Enclosure shall be NEMA 3R, 14-Gauge, and powder-coated standard factory finish steel enclosure. All screws, latches, hinge pins and similar hardware shall be stainless steel. HMI, AC and DC disconnect switches, and equipment rating labels shall be mounted on the exterior door. Exterior door shall have interlock switch and be lockable with a padlock. The cabinet shall have MEV13 rated filtered, top entry forced air cooling system with one fan, sloped roof, and shall be suitable for seismic zone 4 compliance.

DC/AC Inverter shall be rated at maximum continuous output power of 100 kW (100 kVA) with input operating voltage range between 315 to 600 VDC and maximum DC input current of 331 A. Inverter shall be capable of operating at ambient temperature range (Full power) of -4°F to +122°F. DC/AC Inverter manufacturer shall be one of those manufacturers listed as eligible California Solar Initiative (CSI) DC/AC Inverter manufacturer.



PHOTOVOLTAIC SYSTEM

Revenue Grade Production Metering

Revenue Grade Production Metering shall be outdoor type, factory assembled metering system with CSI approved System Performance and consisting of the following equipment:
- Revenue Grade Production Meter
- Power supply
- RS485 Surge Suppressor
- NEMA 3R Enclosure, exterior door shall be lockable with a padlock.

Photovoltaic System Requirements

Photovoltaic System complete design and installation details inclusive of all Engineering calculations shall be signed by an Professional Engineer of the respective field (both Electrical and Civil Engineering) in the State of California shall be submitted for approval by the Contractor. The PV design shall meet or exceed the following requirements:

1) Total designed capacity of photovoltaic system shall be minimum 92.2 kW of the CEC-AC rating.
Number of PV module per string shall be arranged in a manner to meet or exceed the following:
- Maximum system voltage based on lowest excepted ambient temperature at the site (Voc maximum on coldest day) shall be no less than 1% of the Inverter's maximum input DC voltage range.
- Maximum system power voltage based on average high ambient temperature at the site (Vmp on warmest day) shall be 20% greater than the Inverter's minimum input DC voltage range.

2) Photovoltaic system module row spacing shall be designed to prevent shading from adjacent module.

3) All wiring except at module interconnection shall be concealed inside conduit system.

4) Photovoltaic system modules structural support system shall be designed to withstand wind forces of 85-mile per hour.

5) Photovoltaic system wiring and protective devices shall meet or exceed the requirements of all applicable codes.

6) PV Array Circuit Combiner Boxes locations as shown are arbitrary only. Contractor shall install the combiner boxes at locations that best suit the photovoltaic system strings layout.

7) PV modules installed on different slopes and/or orientation shall not be part of the same string except PV modules installed on flat roof.

General Notes:

A. Provide and install all necessary warning labels/markings per Article 690 of California Electrical Code (CEC) and the State Fire Marshal's guideline for solar PV installation.

B. Solar PV installation shall comply with the latest guideline from California Department of Forestry & Fire Protection, Office of the State Fire Marshal and latest Program Handbook from California Solar Initiative (CSI).

C. For graphic symbols and abbreviations, see GP.

DESIGN	BY Tommy F. Lee	CHECKED Jesse S. Sandhu	
DETAILS	BY Dalt Zhou	CHECKED Tommy F. Lee	
QUANTITIES	BY Tommy F. Lee	CHECKED Jesse S. Sandhu	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN

CU 03131
EA 0AA011

BRIDGE NO. 16M5505
POST MILE

MARYSVILLE MAINTENANCE STATION
PHOTOVOLTAIC SYSTEM
SINGLE LINE DIAGRAM
GRID-TIED PHOTOVOLTAIC SYSTEM

SHEET EE-2

DOES SD Imperial Rev. 1/07

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY) 5/18/09 7/28/09 12/9/09

SHEET OF

20-JAN-2010 14:51

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DIST.	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Yub	5505		6	7

Tommy F. lee
REGISTERED ELECTRICAL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER
Tommy F. Lee
No. 18534
Exp. 12-31-10
ELEC
STATE OF CALIFORNIA

PLANS APPROVAL DATE

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CALIFORNIA STATE FIRE MARSHAL APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.
Reviewed by: JASON D. DeWITT
Approval date: 1-11-10

General Notes:

A. *Provide and Install approved conduit support on top of the roof to support conduit system and junction boxes. Conduit support shall be one-piece and non metallic type. For conduit support details, see detail 3 on sheet EE-4.*

B. *All exposed conduits shall be galvanized rigid steel, with minimum size ¾".*

C. *Size conduits to allow for 50% future capacity.*

D. *No DC wiring except at the module connector shall be exposed.*

E. *Use type CGB connectors at conduit terminations to exposed conductors.*

F. *DC conduit/conductors between photovoltaic modules and photovoltaic Array Circuit Combiner Boxes are not shown.*

G. *For graphic symbols and abbreviations, see GP sheet.*

H. *For photovoltaic rack attachment detail, see details 1 on sheet EE-4.*

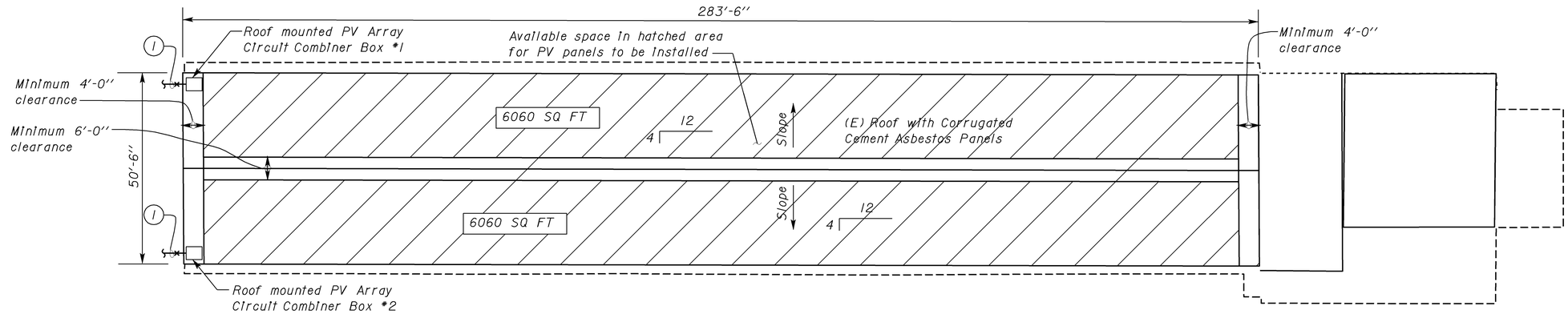
I. *Existing Storage Building roof minimum height is approximately 14'-0".*

J. *Provide and Install all necessary warning labels/markings per Article 690 of California Electrical Code (CEC) and the State Fire Marshal's guideline for solar PV Installation.*

K. *Solar photovoltaic Installation shall comply with the latest guideline from California Department of Forestry & Fire Protection, Office of the State Fire Marshal and latest Program Handbook from California Solar Initiative (CSI).*

Note:

(1) *2"C, MC, with DC conductors and equipment grounding conductor to Utility Interactive Inverter Cabinet. For continuation, see sheet EE-1.*



PLAN
SCALE 1/16" = 1'-0"

THIS DRAWING ACCURATE FOR ELECTRICAL WORK ONLY

DESIGN	BY Tommy F. Lee	CHECKED Jesse S. Sandhu	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO. 16M5505	MARYSVILLE MAINTENANCE STATION PHOTOVOLTAIC SYSTEM	SHEET EE-3
DETAILS	BY Dali Zhou	CHECKED Tommy F. Lee			POST MILE	ROOF PLAN	
QUANTITIES	BY Tommy F. Lee	CHECKED Jesse S. Sandhu					

DOES SD Imperial Rev. 1/07

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 03131
EA 0AA011

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)											SHEET	OF
7/28/09	7/30/09	12/9/09										

20-JAN-2010 14:51

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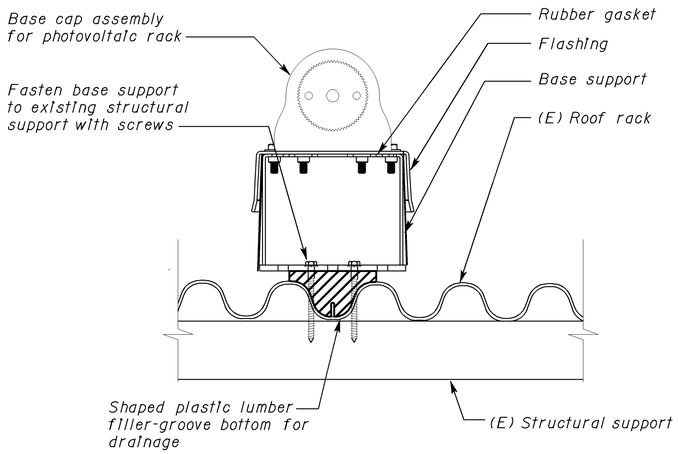
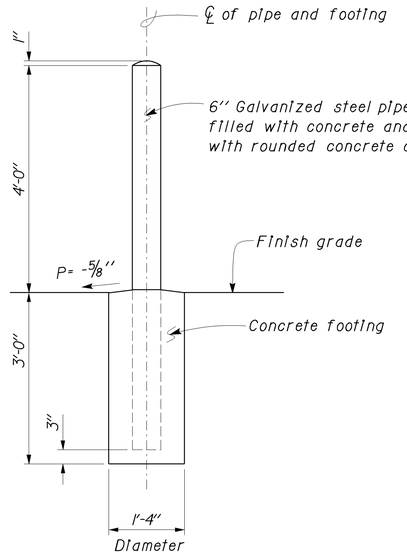


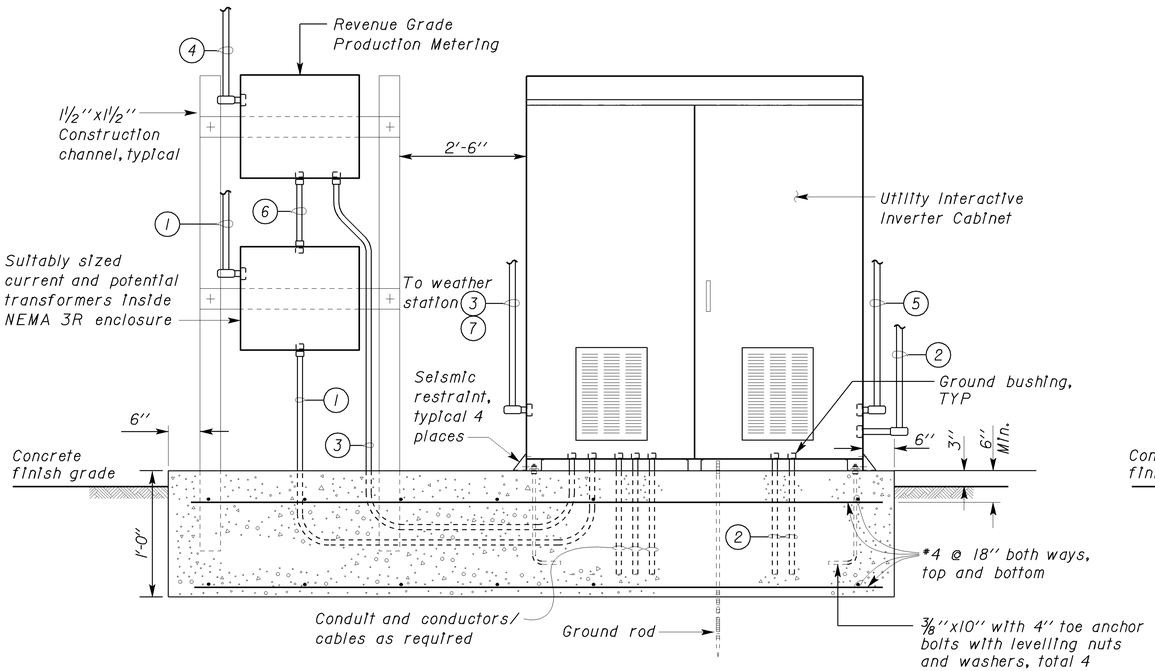
1 CORRUGATED DECKING

NO SCALE



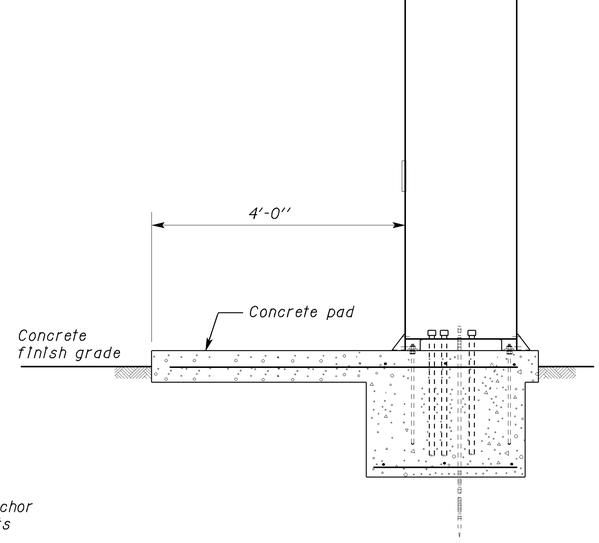
2 FIXED PIPE GUARD POST

NO SCALE



A ELEVATION

NO SCALE



SIDE VIEW

CALIFORNIA STATE FIRE MARSHAL
APPROVED
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.
Reviewed by: JASON D. DeWITT
Approval date: 1-11-10

DIST.	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Yub	5505		7	7

Tommy F. lee 12-09-09
REGISTERED ELECTRICAL ENGINEER — DATE

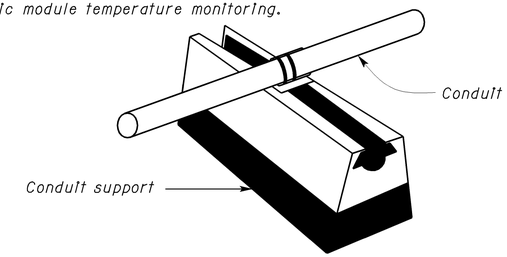
REGISTERED PROFESSIONAL ENGINEER
TOMMY F. LEE
No. 18534
Exp. 12-31-10
ELEC
STATE OF CALIFORNIA

PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

Notes:

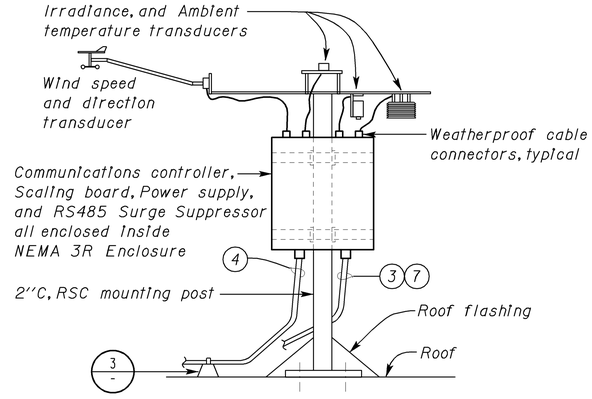
1. 3"C, RSC, five conductors; three phase, one neutral and one equipment grounding conductor.
2. 2" C, RSC, with DC conductors and equipment grounding conductor from photovoltaic Array Circuit Combiner Box on the roof.
3. ½"C, RSC, one RS485 modbus cable.
4. ½'C, RSC, 2*12, 1*12G.
5. ½"C, RSC, Category 6 cable to existing TTB inside the Telephone Cabinet.
6. 2" C, RSC, conductors as required.
7. Shielded conductors for photovoltaic module temperature monitoring.



ROOF MOUNTED CONDUIT SUPPORT

3

NO SCALE



4 WEATHER STATION

NO SCALE

DESIGN	BY Tommy F. Lee	CHECKED Jesse S. Sandhu	
DETAILS	BY Dali Zhou	CHECKED Tommy F. Lee	
QUANTITIES	BY Tommy F. Lee	CHECKED Jesse S. Sandhu	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN

CU 03131
EA 0AA011

BRIDGE NO. 16M5505
POST MILE

MARYSVILLE MAINTENANCE STATION PHOTOVOLTAIC SYSTEM

ELEVATION AND DETAILS

SHEET EE-4

DOES SD Imperial Rev. 1/07

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY) | SHEET | OF
7/17/09 | 7/28/09 | 12/9/09

20-JAN-2010 14:51

ee_4.dgn